171 and the core 172 can be provided on the outer side of the film 161, the coil 171 etc. is not subjected to the influence of the temperature of the heat-generating member 168. As a result, the amount of generated heat is stabilized.

Furthermore, according to this example, at the nip portion 167, the film 161 deforms along the outer peripheral surface of the pressure roller 165, so that when the recording material 174 passes through the nip portion 167, the direction in which it leaves the nip portion is the direction in which it also separates from the film 161, so that the defoliation of the recording material 174 from the film 161 becomes much easier.

Moreover, the upper roller 163 positioned on the inner side (rear surface side) of the film 161 can be made of a foamed material with low thermal conductivity, so that due to the voids inside the upper roller 163 the heat generated in the film 161 does not escape very easily, and good thermal efficiency can be attained.

In this example, a magnetic plate 169 attached firmly to a conductive plate 170 is used as the heat-generating member 168, but the same temperature self-regulation can also be attained when there is a small air gap between the two. In this case, it is not necessary to heat the conductive plate 170, so that the thermal capacity of the heat-generating member can be reduced even further.

Furthermore, in this example, the magnetic plate 169 is fixed, and slides along the film 161, but it is also possible to provide a rotatable cylindrical magnetic roller corresponding to this magnetic plate 169, and wrap the film 161 around this roller and the upper roller 163. In this case, the sliding portion can be reduced further, and an operation at higher speeds over extended periods of time becomes possible. Furthermore, in this case, if the portion corresponding to the conducting plate 170 is positioned in a non-contacting manner inside this magnetic roller the thermal capacity of the heat-generating member can be reduced even further.

Moreover, in these examples, the self-regulation temperature of the heat-generating member is set to the fixing temperature, but the present invention is not restricted to this configuration, and it is also possible to perform the control of the fixing temperature based on the detection of for example a regular thermistor, and to set the self-regulation temperature higher to prevent an excessive temperature rise, in order to ensure the protection against damages due to high temperatures in the device.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The embodiments disclosed in this application are to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, all changes that come within the meaning and range of equivalency of the claims are intended to be embraced therein.

What is claimed is:

1. An image heating device comprising:

a heat-generating member comprising a magnetic layer with a certain Curie temperature;

a magnetization member for magnetizing said heat-generating member with an alternating magnetic field, which is arranged in opposition to said heat-generating member;

a nip portion for heating a recording material that carries a toner image with heat from said heat-generating member, while the recording material is being conveyed along said nip portion;

wherein a ratio between an amount of heat generated in said heat-generating member at Curie temperature or higher to an amount of heat generated at room temperature in said heat-generating member is not more than ½.

2. The image heating device of claim 1, wherein a thickness of said magnetic layer is at least twice a thickness of a skin depth.

3. The image heating device of claim 1, wherein said heat-generating member further comprises a conductive layer with lower resistance than said magnetic layer, which is provided adjacent to said magnetic layer.

4. The image heating device of claim 3, wherein

$$\rho 1/t1 \geqq \rho 2/t2$$

wherein ρ1 is an intrinsic resistance of said magnetic layer, t1 is a thickness of said magnetic layer, ρ2 is an intrinsic resistance of said conductive layer, and t2 is a thickness of said conductive layer.

5. The image heating device of claim 3, wherein the thickness of said magnetic layer is equivalent to or greater than the skin depth.

6. The image heating device of claim 1, wherein said nip portion is formed by at least a portion of said heat-generating member, and a pressure member pressed against this portion of said heat-generating member.

7. The image heating device of claim 6, wherein at least said magnetic layer of said heat-generating member is a rotatable roller.

8. The image heating device of claim 6, wherein at least said magnetic layer of said heat-generating member is a movable film.

9. The image heating device of claim 8, wherein said film is loop-shaped.

10. The image heating device of claim 6, wherein at least a conductive layer of said heat-generating member is a movable film.

11. The image heating device of claim 1, wherein the nip portion is formed by a movable film contacting said heat-generating member, and a pressure member for pressing against said film.

12. The image heating device of claim 11, wherein said heat-generating member contacts a rear surface of said film.

13. The image heating device of claim 11, wherein said heat-generating member contacts the rear surface of said film from a position upstream of said nip portion to a vicinity of said nip portion, and said magnetization member is provided at the position upstream of said nip portion.

14. The image heating device of claim 11, wherein said heat-generating member is provided on the rear side of said film and contacts a portion of said film, and said magnetization member is provided on a surface side of said film.

15. The image heating device of claim 11, wherein the pressure member comprises a roller with low thermal conductivity provided on the rear surface side of said film and a pressure roller provided on the front surface side of said film..

16. The image heating device of claim 11, wherein said heat-generating member comprises a rotatable roller.

17. An image formation device comprising

an image formation means for forming an unfixed image onto a recording material; and

a thermal fixing device for thermally fixing the unfixed image on the recording material;

wherein an image heating device according to claim 1 is used as the thermal fixing device.

18. An image heating device comprising:

a heat-generating member comprising a magnetic layer with a certain Curie temperature;

a magnetization member for magnetizing said heat-generating member with an alternating magnetic field, which is arranged in opposition to said heat-generating member;

wherein, when said device is in operation, a temperature at which said heat-generating member stabilizes due to a drop of a relative magnetic permeability of said magnetic layer near said Curie temperature is higher than a temperature where cold offset begins, and

wherein said Curie temperature is selected such that, when the temperature of said heat-generating member is stabilized, a temperature of an outgoing portion of a nip portion is lower than a temperature where hot offset of the toner begins.

19. The image heating device of claim **18**, wherein said heat-generating member further comprises a conductive layer with lower resistance than said magnetic layer, which is provided adjacent to said magnetic layer.

20. The image heating device of claim **19**, wherein

$$\rho 1/t1 \geqq \rho 2/t2$$

wherein $\rho 1$ is an intrinsic resistance of said magnetic layer, t1 is a thickness of said magnetic layer, $\rho 2$ is an intrinsic resistance of said conductive layer, and t2 is a thickness of said conductive layer.

21. The image heating device according to claim **18**, wherein

$$Tc \leqq Tk \leqq Th+70^\circ \text{ C.}$$

wherein Tc is the temperature where cold offset of the toner begins in said nip portion, Tk is the Curie temperature, and Th is the temperature where hot offset of the toner begins in an outgoing portion of said nip portion.

22. The image heating device according to claim **18**, wherein

$$140^\circ \text{ C.} \leqq Tk \leqq 280^\circ \text{ C.}$$

wherein Tk is the Curie temperature.

23. The image heating device of claim **18**, wherein said nip portion is formed by at least a portion of said heat-generating member, and a pressure member pressed against this portion.

24. The image heating device of claim **23**, wherein at least said magnetic layer of said heat-generating member is a rotatable roller.

25. The image heating device of claim **23**, wherein at least said magnetic layer of said heat-generating member is a movable film.

26. The image heating device of claim **23**, wherein at least said conductive layer of said heat-generating member is a movable film.

27. The image heating device of claim **18**, wherein the nip portion is formed by a movable film contacting said heat-generating portion, and a pressure member for pressing against said film.

28. The image heating device of claim **27**, wherein said heat-generating member contacts a rear surface of said film.

29. The image heating device of claim **27**, wherein said heat-generating member contacts the rear surface of said film from a position upstream of said nip portion to a vicinity of said nip portion, and said magnetization member is provided at the position upstream of said nip portion.

30. The image heating device of claim **27**, wherein said heat-generating member is provided on the rear side of said film and contacts a portion of said film, and said magnetization member is provided on a surface side of said film.

31. The image heating device of claim **27**, wherein the pressure member comprises a roller with low thermal conductivity provided on the rear surface side of said film and a pressure roller provided on the front surface side of said film.

32. The image heating device of claim **27**, wherein said heat-generating member comprises a rotatable roller.

33. The image heating device of claim **27**, wherein said film is loop-shaped.

34. An image formation device comprising

an image formation means for forming an unfixed image onto a recording material; and

a thermal fixing device for thermally fixing the unfixed image on the recording material;

wherein an image heating device according to claim **18** is used as the thermal fixing device.

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